

ABSTRACT

A method for forming three-dimensional polymeric particulate microstructures through self-folding of thin-film microparticles. Self-folding of two-dimensional polymeric precursors produces various three-dimensional particulate microstructures. Dumpling-like microstructures with oil cores and polymer coats are prepared by an interfacial-tension driven self-folding method. Roll-like and bowl-shaped hydrogel microstructures are fabricated by self-folding induced by differential volume shrinkage. Curled microstructures are produced by self-folding that is the result of a two-polymer or bilayer method wherein one of the polymers is a volume changeable polymer.